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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,134	02/18/2004	John Santhoff	048CIP-120	5198
44279	7590	08/16/2005	EXAMINER	
PULSE-LINK, INC. 1969 KELLOGG AVENUE CARLSBAD, CA 92008			YAO, KWANG BIN	
			ART UNIT	PAPER NUMBER
			2667	
DATE MAILED: 08/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/782,134	SANTHOFF ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kwang B. Yao	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/18/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group II in the reply filed on 6/9/05 is acknowledged. The traversal is on the ground(s) that the inventions must be independent or distinct; and there must be a serious burden on the Examiner. This is not found persuasive because the followings: Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are **distinct** from each other if they are shown to be separately usable. In the instant case, inventions I, II have separate utility such as the followings: Invention I and II are related as subcombinations disclosed as usable together in a single combination of an ultra-wideband communication method; Invention I has separate utility of determining a radio frequency band; and mapping any electromagnetic signals present in the determined radio frequency band; Invention II has separate utility of generating data frames and transmitting data frames in different data rates. See MPEP § 806.05(d). (Emphasis added).

The requirement is still deemed proper and is therefore made FINAL.

2. This application contains claims 1-6 drawn to an invention nonelected with traverse in Response filed on 6/9/05. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### *Drawings*

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed features of "pseudo-

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random method”, “spectral line”, “pseudo-random timing sequence”, “time bins” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

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provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 7-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7,9,11-13 of copending Application No. 10/663,174 in view of Padovani et al. (US 5,535,239).

This is a provisional obviousness-type double patenting rejection.

Claims 7-20 of the instant application disclose the following features: regarding claim 7. An ultra-wideband communication method, the method comprising the steps of: generating a first data frame, constructed to transmit data at a first data rate; generating a second data frame, constructed to transmit data at a second data rate; and transmitting both the first and second data frames in a pseudo-random method; regarding claim 8, wherein the pseudo-random method comprises transmitting the first and second data frames so as to substantially avoid generating a spectral line; regarding claim 9, wherein the pseudo-random method comprises transmitting the first and second data frames by using a pseudo-random timing sequence; regarding claim 10, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse; regarding claim 11, wherein the first data frame transmits data at a rate that ranges between about one kilobit per second to about five megabits per second; regarding claim 12, wherein the second data frame transmits data at a rate that ranges between about five megabits per second to about one gigabit per second; regarding claim 13, wherein the second data frame transmits data at a rate selected from a group consisting of: a 25 megabit per second rate, a 50 megabit per second rate, a 100 megabit per second rate, a

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200 megabit per second rate, a 400 megabit per second rate, a 480 megabit per second rate, a 500 megabit per second rate, and a one gigabit per second rate; regarding claim 14, wherein the first and second data frames each comprise a time duration that may range from about one microsecond to about one millisecond; regarding claim 15, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse, wherein the ultra-wideband pulse may range in duration from about 10 picoseconds to about one nanosecond; regarding claim 16, an ultra-wideband communication method, the method comprising the steps of: means for generating a first data frame, constructed to transmit data at a first data rate; means for generating a second data frame, constructed to transmit data at a second data rate; and means for transmitting both the first and second data frames in a pseudo-random method; regarding claim 17, an ultra-wideband communication device, comprising: a transceiver structured to communicate at a first data rate; and a transmitter structured to transmit at a second data rate that is greater than the first data rate; regarding claim 18, wherein the transceiver communicates by receiving and transmitting at the first data rate, and the transmitter transmits at the second data rate; regarding claim 19, wherein the first data rate transmits data at a rate that ranges between about 1 kilobit per second to about 5 megabits per second; regarding claim 20, wherein the second data rate transmits data at a rate that ranges between about 5 megabits per second to about 1 gigabit per second.

Claims 1-7, 9, 11-13 of copending Application No. 10/663,174 disclose the following features: regarding claim 1. A ultra-wideband communication method, the method comprising the steps of: generating a first data frame, constructed to transmit data at a first data rate; generating a second data frame, constructed to transmit data at a second data rate; and

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transmitting both the first and second data frames; regarding claim 2, The method of claim 1, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse; regarding claim 3. The method of claim 1, wherein the first data frame transmits data at a rate that ranges between about one kilobit per second to about five megabits per second; regarding claim 4. The method of claim 1, wherein the second data frame transmits data at a rate that ranges between about five megabits per second to about one gigabit per second; regarding claim 5. The method of claim 1, wherein the second data frame transmits data at a rate selected from a group consisting of: a 25 megabit per second rate, a 50 megabit per second rate, a 100 megabit per second rate, a 200 megabit per second rate, a 400 megabit per second rate, a 480 megabit per second rate, a 500 megabit per second rate, and a one gigabit per second rate; regarding claim 6. The method of claim 1, wherein the first and second data frames each comprise a time duration that may range from about one microsecond to about one millisecond; regarding claim 7. The method of claim 1, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse, wherein the ultra-wideband pulse may range in duration from about 10 picoseconds to about one nanosecond; regarding claim 9. A ultra-wideband communication method, the method comprising the steps of: means for generating a first data frame, constructed to transmit data at a first data rate; means for generating a second data frame, constructed to transmit data at a second data rate; and means for transmitting both the first and second data frames; regarding claim 11. An ultra-wideband communication device, comprising: a first transceiver structured to communicate at a first data rate; and a second transceiver structured to communicate at a second data rate; regarding claim 12. The ultra-wideband communication

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device of claim 11, wherein the first data rate transmits data at a rate that ranges between about 1 kilobit per second to about 5 megabits per second; regarding claim 13. The ultra-wideband communication device of claim 11, wherein the second data rate transmits data at a rate that ranges between about 5 megabits per second to about 1 gigabit per second.

As stated above, claims 1-7, 9, 11-13 of copending Application No. 10/663,174 disclose all the claimed limitations of claims 7-20 of the instant application, except the features of: regarding claim 7 in the instant application, transmitting both the first and second data frames in a pseudo-random method; regarding claim 16, means for transmitting both the first and second data frames in a pseudo-random method; regarding claim 17, a transmitter structured to transmit at a second data rate that is greater than the first data rate.

Padovani et al. discloses a communication system comprising the following features: regarding claim 7 in the instant application, transmitting both the first and second data frames in a pseudo-random method (column 16, lines 50-63; column 34, lines 43-55); regarding claim 16, means for transmitting both the first and second data frames in a pseudo-random method (column 16, lines 50-63; column 34, lines 43-55); regarding claim 17, a transmitter structured to transmit at a second data rate that is greater than the first data rate (column 16, lines 50-63; column 34, lines 43-55). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of copending Application No. 10/663,174, by using the features, as taught by Padovani et al., in order to provide an efficient data communication system by reducing within transmission data frames of various users the occurrence of unnecessary instances of contemporaneous transmission of data so as to reduce system wide traffic loading in data transmission. See Padovani et al., column 2, lines 45-48.



***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton (US 2003/0189975) in view of Padovani et al. (US 5,535,239).

Fullerton discloses a communication system comprising the following features: regarding claim regarding claim 7, an ultra-wideband communication method; regarding claim 16, an ultra-wideband communication method; regarding claim 17, an ultra-wideband communication device. See Abstract.

Fullerton does not disclose the following features: the method comprising the steps of: regarding claim 7, generating a first data frame, constructed to transmit data at a first data rate; generating a second data frame, constructed to transmit data at a second data rate; and transmitting both the first and second data frames in a pseudo-random method; regarding claim 8, wherein the pseudo-random method comprises transmitting the first and second data frames so as to substantially avoid generating a spectral line; regarding claim 9, wherein the pseudo-random method comprises transmitting the first and second data frames by using a pseudo-random timing sequence; regarding claim 10, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse; regarding claim 11, wherein the first data frame transmits data at a rate that ranges between about one kilobit per second to about five megabits per second; regarding claim 12,

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wherein the second data frame transmits data at a rate that ranges between about five megabits per second to about one gigabit per second; regarding claim 13, wherein the second data frame transmits data at a rate selected from a group consisting of: a 25 megabit per second rate, a 50 megabit per second rate, a 100 megabit per second rate, a 200 megabit per second rate, a 400 megabit per second rate, a 480 megabit per second rate, a 500 megabit per second rate, and a one gigabit per second rate; regarding claim 14, wherein the first and second data frames each comprise a time duration that may range from about one microsecond to about one millisecond; regarding claim 15, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse, wherein the ultra-wideband pulse may range in duration from about 10 picoseconds to about one nanosecond; regarding claim 16, the method comprising the steps of: means for generating a first data frame, constructed to transmit data at a first data rate; means for generating a second data frame, constructed to transmit data at a second data rate; and means for transmitting both the first and second data frames in a pseudo-random method; regarding claim 17, comprising: a transceiver structured to communicate at a first data rate; and a transmitter structured to transmit at a second data rate that is greater than the first data rate; regarding claim 18, wherein the transceiver communicates by receiving and transmitting at the first data rate, and the transmitter transmits at the second data rate; regarding claim 19, wherein the first data rate transmits data at a rate that ranges between about 1 kilobit per second to about 5 megabits per second; regarding claim 20, wherein the second data rate transmits data at a rate that ranges between about 5 megabits per second to about 1 gigabit per second.

Padovani et al. discloses a communication system comprising the following features: regarding claim 7, generating a first data frame (Figs. 2a-h; Figs. 10a-d), constructed to transmit data at a first data rate (Figs. 10a-d); generating a second data frame (Figs. 2a-h; Figs. 10a-d), constructed to transmit data at a second data rate (Figs. 10a-d); and transmitting both the first and second data frame (Figs. 2a-h; Figs. 10a-d)s in a pseudo-random (Fig. 1, DATA BURST RANDOMIZER LOGIC 46; column 16, lines 50-63; column 34, lines 43-55) method; regarding claim 8, wherein the pseudo-random (Fig. 1, DATA BURST RANDOMIZER LOGIC 46; column 16, lines 50-63; column 34, lines 43-55) method comprises transmitting the first and second data frame (Figs. 2a-h; Figs. 10a-d)s so as to substantially avoid generating a spectral line; regarding claim 9, wherein the pseudo-random (Fig. 1, DATA BURST RANDOMIZER LOGIC 46; column 16, lines 50-63; column 34, lines 43-55) method comprises transmitting the first and second data frame (Figs. 2a-h; Figs. 10a-d)s by using a pseudo-random (Fig. 1, DATA BURST RANDOMIZER LOGIC 46; column 16, lines 50-63; column 34, lines 43-55) timing sequence; regarding claim 10, wherein the first and second data frame (Figs. 2a-h; Figs. 10a-d)s each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse (Fig. 12); regarding claim 15, wherein the first and second data frame (Figs. 2a-h; Figs. 10a-d)s each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse (Fig. 12); regarding claim 16, the method comprising the steps of: means for generating a first data frame (Figs. 2a-h; Figs. 10a-d), constructed to transmit data at a first data rate (Figs. 10a-d); means for generating a second data frame (Figs. 2a-h; Figs. 10a-d), constructed to transmit data at a second data rate (Figs. 10a-d); and means for transmitting both the first and second data frame (Figs. 2a-h; Figs. 10a-d)s in a pseudo-random (Fig. 1, DATA

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BURST RANDOMIZER LOGIC 46; column 16, lines 50-63; column 34, lines 43-55) method; regarding claim 17, comprising: a transceiver structured to communicate at a first data rate (Figs. 10a-d); and a transmitter structured to transmit at a second data rate (Figs. 10a-d) that is greater than the first data rate (Figs. 10a-d); regarding claim 18, wherein the transceiver communicates by receiving and transmitting at the first data rate (Figs. 10a-d), and the transmitter transmits at the second data rate (Figs. 10a-d). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Fullerton by using the features, as taught by Padovani et al, in order to provide an efficient data communication system by reducing within transmission data frames of various users the occurrence of unnecessary instances of contemporaneous transmission of data so as to reduce system wide traffic loading in data transmission. See Padovani et al., column 2, lines 45-48.

Regarding claims 11, 12, 13, 14, 15, 19, 20, Fullerton and Padovani et al. do not disclose the specific data rate and time duration. However, it would have been obvious to one of the ordinary skill in the art to implement any bit locations in a burst as a design choice based upon the arrangement specification and requirement for users.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tiedemann, JR. et al. (US 2002/0126739) discloses a power control system.

Sato (US 6,088,324) discloses a mobile communication system.

Scott et al. (US 6,041,046) discloses a TDMA system.

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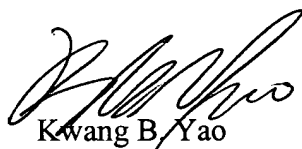
Kaul (US 4,586,177) discloses a TDMA system.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang B. Yao whose telephone number is 571-272-3182. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**KWANG BIN YAO**  
**PRIMARY EXAMINER**



Kwang B. Yao  
August 12, 2005